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## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/828,313

DATE: 08/27/2001

TIME: 12:31:16

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Output Set: N:\CRF3\08272001\I828313.raw

ENTERED

p.5

3 <110> APPLICANT: COSTA e SILVA, OSWALDO DA  
4 BOHNERT, HANS J.  
5 THIELEN, NOCHA VAN  
6 CHEN, ROUYING  
7 SARRIA-MILLAN, RODRIGO  
9 <120> TITLE OF INVENTION: PROTEIN KINASE STRESS-RELATED PROTEINS AND METHODS OF  
10 USE IN PLANTS  
12 <130> FILE REFERENCE: 16313-0032  
14 <140> CURRENT APPLICATION NUMBER: 09/828,313  
15 <141> CURRENT FILING DATE: 2001-04-06  
17 <150> PRIOR APPLICATION NUMBER: 60/196,001  
18 <151> PRIOR FILING DATE: 2000-04-07  
20 <160> NUMBER OF SEQ ID NOS: 128  
22 <170> SOFTWARE: PatentIn Ver. 2.1  
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25 <211> LENGTH: 695  
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30 <221> NAME/KEY: modified\_base  
31 <222> LOCATION: (636)  
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42 catgtctgga acctataccg tgaagagtga cgtctacagc ttcgggtgtg taatgctgga 180  
43 gctactcact gggcgcaagc cttagacag ctcaagacca cgatccgagc aatctttggt 240  
44 acgatgggcc acacctcaat tgcacgacat cgacgccctt gcacgaatgg tggatccgtc 300  
45 gttgaagggc atctaccctg ctaaatcact ctctcgggtt gctgatatag tcgccctttg 360  
46 cgtccagccg gagcccgagt tccgaccccc gatgtctgaa gtggtgcagg cacttgtaag 420  
47 gctgatgcag cgtgcgagtc tgagcaaacy cagatcggag tccgctgttg ggaattgagt 480  
48 cgaacgagcc atctgagact tcacctttga gagtactgaa gcgccacta gcctaategt 540  
49 gcatctttgg ccactctcgtt tctgagtgga acacaaagt gggatatattc tttggtggtt 600  
W--> 50 aagcaaccat ttgtcccaat tgaacttcc gctggngaag gtctgtatgt tgagaaacga 660  
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57 <213> ORGANISM: Physcomitrella patens  
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62 acaagatctg tcccttgctg ttcccggact cagcgcggtt ggcttagacc ttctcgccaa 180

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63 aatgttggtta ttgcagccct caaagagaat ctctgccaaa gccgccttga gccatactta 240
64 ttctgctgat gttgataaga cagcaaccta aacacaacag aacaattcaa gagaaccagg 300
65 taacctctac ctgtccaaga cgaaggacat ctaactcttc agtcaaactt ggccaatcat 360
66 gctgattggg aattgaacca caggaacgag gtgggcaccg tggttcgtg tagcatacaa 420
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77 &lt;221&gt; NAME/KEY: modified\_base

78 &lt;222&gt; LOCATION: (608)

79 &lt;223&gt; OTHER INFORMATION: a, t, c, g, other or unknown

81 &lt;400&gt; SEQUENCE: 3

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84 tctccgagag gcgaggcgga gagtgcagga tacatggaga tggtaaagct gttgaaggat 180
85 tacggggctg agtcacacgc aggtgccccg aggggccacg ttgagagtct gattcagggt 240
86 gccctccgtg tgcttcttaa ccgcgactgg gagatcgctc cgtcggagat tgaacttgat 300
87 accagcgagc tcatcggaac aggtcctttt ggagagattc ggaaggcgct ttggcgcggc 360
88 acaccgctcg ctgtgaagac aatcagacct tctctgtcca acgacagaat ggtcatcaag 420
89 gacttccagc acgaggtgca attgctcgta aaggttcggc acccaaacat tgtgcagttc 480
90 ctcggggctg ttaccgctca aagacctctc atgttagtca ccgagtttct ggcagggggg 540
91 cgatttgcac cagttgctga ggagcaccct aaatttggt cctgaccgca tcgtgaagta 600

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W--&gt; 92 tgcctcncac atagctcgcg gcatgtctta cttcaccatc ggagcagccc a 651

95 &lt;210&gt; SEQ ID NO: 4

96 &lt;211&gt; LENGTH: 710

97 &lt;212&gt; TYPE: DNA

98 &lt;213&gt; ORGANISM: Physcomitrella patens

100 &lt;220&gt; FEATURE:

101 &lt;221&gt; NAME/KEY: modified\_base

102 &lt;222&gt; LOCATION: (54)

103 &lt;223&gt; OTHER INFORMATION: a, t, c, g, other or unknown

105 &lt;400&gt; SEQUENCE: 4

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107 gaagaaacgt aactccgtac ggctatttta ccaaattttc aagctcgttg tccgcccatg 120
108 atccaaatgg aagctcagtt tgcaacatga agtacattga acacacctac cgcccaccag 180
109 tcagaagcca ggccatgacc ttgtccttga atgatctcgg gtgctaagaa atcagccatg 240
110 ccacagactg tgaaagtgcg ctcatccgac atttgctttg caaacgaaa atcaaccagc 300
111 tgaagtcgtc ctttccgata tatcataaga acatcgggag agatgccacg atatacaacg 360
112 ccacccctgt gcagaagttc gacggctaata accacgcttg cgaccagaaa acgagctgag 420
113 ttctcgtcta aaggtgaccg aagtagaagt tctagaggcc cagctaacac acaattaaga 480
114 agcctgacca cattgtcact gtcaataggg gtggccaaga gatgcggcac gaatggggaa 540
115 ggcctcagtt gcttgaaaag agttctctcc aataggactt ggccctccc accgagtctc 600
116 tgaactttac gtctctggtta ctttttcatt cttatgacgt catctgattt cttgcagagc 660
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120 &lt;210&gt; SEQ ID NO: 5

121 &lt;211&gt; LENGTH: 1271

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123 <213> ORGANISM: Physcomitrella patens
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126 <221> NAME/KEY: modified_base
127 <222> LOCATION: (619)
128 <223> OTHER INFORMATION: a, t, c, g, other or unknown
130 <400> SEQUENCE: 5
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133 ataaagtcac ttctagtctg atccatacaa gctaccgaca caatgctaga agccttgatt 180
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135 cctcaactcc ataaaccccc attcacaatc atgtaagact tgagagaggg aaacagtaag 300
136 caaccttggt ctattttagt accagagcag aggatgaacc actagtcttc ccaacgtaag 360
137 ccctaattcg ccgcaacaac ctcacgacgg aactccgact tggtaaggg tggacaatat 420
138 gatacattcg aaggctcgatt ttgcaaatgg gacgaagcag cggaattctg gctgcgact 480
139 gattgcagag agccattctg ggggagttga gtatacacag tccagtctga cacatggtcg 540
140 agctggaatt ttttctgaat gaaaagatca cggaacaagc ttcggaggta cagtagtcag 600
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142 taccatcac aaagctcctc ccacagtggg ggtcatcttg attttgttgt gcatgtactc 720
143 gtgttgcttc tggtcagtga gggcgttgcc cgcccttccc ttgccatggc aaattgcctc 780
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146 cggtaaggga tatgccttcg tgttgccggg tccatgtact cctttgcca gccaaaatct 960
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152 aactctcgtg c 1271
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156 <211> LENGTH: 1910
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163 acttcacctc cgtacgttac ttggcaagga ttatggttta gtgataaaaa gcttcacaag 180
164 ccggcaagca tgctggttgc ttctgctgca atctaattgat tatttcctta ggaatcgtat 240
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167 ttccctcaa tcaggctgtt gccaaatgta gagcaactct catcaacata acaagagggt 420
168 ttgatagaag acagagcccg gctatataac cacaagccct gcgcctacct tataacggct 480
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172 ctgttcgaga ggaatctacg acttctgctg atgccctga gggcctgctg ctgatagga 720
173 cagctgcctt ggaggaagaa ccccccgag ttgcatacga agatgtatgc atgcgctctg 780
174 gttctgacac aacagcaaga gcagaatcct tagcagattc atcaagtcca ggacttttgt 840
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178 aaatttgtga ctgctggtac ttcagaattg tccagtcaaa aacgtagtca aattgaaaac 1080
179 ctgtaaaact atttccagtt taggcaaaca gaagtggcac tgtaataaac tgaaaatcat 1140
180 caaacattca caaactatct gttcgttgat agagcatagt aaagtctgcg cttaggatca 1200
181 agtcttgata cattacaatg cccaagcaag agtgaaacct acaaaagtta cagttttcat 1260
182 accctcacga ataaagaggt cacggaagat tcttttcaaa tatgcatagt cggggttgtc 1320
183 atcaaaacgc aaggaccggc agtagtgga gtacgctcgt gcgaattctg aaggataatt 1380
184 tttaaaaagg acctcaatgg gcgtggacat ttgttttctc actgatcttc tcgtacttct 1440
185 gcttcttggg tcccgccttc agtccttgcc catggaagac tgcctctcag gaagtacatg 1500
186 agcacatatc caagagattc caaatcatct cgtctgcttt gctcaatacc aagatgagtg 1560
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188 tgatgcgtgg aagggtcgcg gtacttcttg gcaagaccaa aatcaataat gtagacctgg 1680
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190 cttttcgcat gcacatactc cactctgttg atcagctggt cagcaagcat gagaacagtc 1800
191 tttaaagaga acttccggct gcagaagttg aaaaggtctt cgagacttgg ccccaacaga 1860
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195 &lt;210&gt; SEQ ID NO: 7

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197 &lt;212&gt; TYPE: DNA

198 &lt;213&gt; ORGANISM: Physcomitrella patens

200 &lt;220&gt; FEATURE:

201 &lt;221&gt; NAME/KEY: modified\_base

202 &lt;222&gt; LOCATION: (58)

203 &lt;223&gt; OTHER INFORMATION: a, t, c, g, other or unknown

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207 &lt;222&gt; LOCATION: (612)

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210 &lt;400&gt; SEQUENCE: 7

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213 gaaaaaaaaa atcaaaagag agatcaagat tctgcaaaac ctttgaggag ggcccaacat 180
214 tgtgaagctt ctggacattg tccgtgatca gcaatcgaag acaccagacc taatttttga 240
215 gtatgtgaac aatactgatt tcaaagtgtc ctacccactc cttacagact ttgatattcg 300
216 atactacatt catgagctgc tcaaggcttt ggactattgc cattctcaag ggattatgca 360
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220 catgtggagc tctggggtgc atgtttgccg gcatgatatt tcggaaggag ccattctttt 600
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222 aattgaattc ctatctaaca aataccgcta agtggaaccc attggagcac ctgggtggggg 720

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226 &lt;211&gt; LENGTH: 953

227 &lt;212&gt; TYPE: DNA

228 &lt;213&gt; ORGANISM: Physcomitrella patens

230 &lt;400&gt; SEQUENCE: 8

231 gcacgaggaa ctaacgaatt gtcattctat aatccaatag tgtaatcaca cgggggggaa 60

232 taagttgcaa aaccatacaa cgccgggata gcgttgtagc cacctaaaga attgagagta 120

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233 ggccttacaa cttgagatga agtgtgaagt ggtactgcac catatcatca ggacctaagc 180
234 tgcaatccag agcctccctc caaatgagat cctgatagc ctocctccag atagagggct 240
235 cctcgaagcc aaactcgaag ggagataccg agccaggctc atcgttgatg tcatgaagtg 300
236 aagcttaaat aaggggtgcg caaggcagct tccactgtga ttcttttcgc tggatcaaag 360
237 accagcatct tttaacaag atcaagagca gaacgattaa tgccctctgaa cttctgggtt 420
238 aagggaatag gcgactgtcg aggcagggtg ttgatatacc gcctagcatt gtcgcttctc 480
239 aaaaacccaa gatccctatc ttcaggagtt ccgatgagtt ctgtaattag gcgagctga 540
240 tgcacatagt ctctcccagg gaacaacgca gatcggttaa gcaactccat gaagatgcac 600
241 cccacagacc aaatgtcaat agctgcagtg tatgctgaac aattcaggag cagctctgga 660
242 gctctgtacc acctcggtac aacatactca gtcataaaat ccgtttcaga gagagtgcgt 720
243 gccaaagccaa aatctgcgat ttcaaatcg caattggcat tgacgagaag gttggtgggc 780
244 ttcaagtccc ggtgcaagac gttcgccgaa tggatgtact tcaagccccg caagatttga 840
245 tacagaaaaa actgacagtg gtcttctgtg agagcttgat ttgaacgaat gatctggtgt 900
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252 &lt;213&gt; ORGANISM: Physcomitrella patens

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255 &lt;221&gt; NAME/KEY: modified\_base

256 &lt;222&gt; LOCATION: (603)

257 &lt;223&gt; OTHER INFORMATION: a, t, c, g, other or unknown

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260 &lt;221&gt; NAME/KEY: modified\_base

261 &lt;222&gt; LOCATION: (610)

262 &lt;223&gt; OTHER INFORMATION: a, t, c, g, other or unknown

264 &lt;400&gt; SEQUENCE: 9

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267 taatctttcc ggagaggcct tatcgccgac ggcaactgcc gaagacgaga ttactcagat 180
268 gatactaaaa agtgccgcaa ggtccgaatt aggaatgtat gtttcgaaga gacaggaatt 240
269 ctatcttcga agagcgcgga ggcggcgtaa gtttgctggg aagccggttt tgacagagcat 300
270 ctccgagatg aagcctgtca tggaaattcca cactccgatg gcttaccggg atagtgggtc 360
271 tccgccgaag aacgcctcta ccccatcctt acctggcccg aagaacattt caccgccacg 420
272 acaagtgaat gtcccgcaaa ggagcagtc tccgccgaag aacgtctcac cacctcccca 480
273 gcccggcatt ttgtagcgcg gactgcgac gaagtattct gctgcatttc agcaagtcca 540
274 acgaaatcga gggcaacgcg aaatctcttt tatatggcgt agtttgtgtc tccgactgga 600
275 ctccatctta tccccatga gataactgat tcgggtgata atttctccaa attttggcta 660

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W--&gt; 276 acncaagaan ctcaagggcg aat 683

279 &lt;210&gt; SEQ ID NO: 10

280 &lt;211&gt; LENGTH: 1156

281 &lt;212&gt; TYPE: DNA

282 &lt;213&gt; ORGANISM: Physcomitrella patens

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285 &lt;221&gt; NAME/KEY: modified\_base

286 &lt;222&gt; LOCATION: (923)

287 &lt;223&gt; OTHER INFORMATION: a, t, c, g, other or unknown

289 &lt;220&gt; FEATURE:

290 &lt;221&gt; NAME/KEY: modified\_base

Use of n and / or Xaa has been detected in the Sequence Listing. Review the Sequence Listing to ensure a corresponding explanation is present in the <220> to <223> fields of each sequence using n or Xaa.

**VERIFICATION SUMMARY**

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Input Set : A:\16313032.app

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L:92 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:106 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:141 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5  
L:211 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7  
L:221 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7  
L:276 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9  
L:310 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10  
L:314 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10  
L:387 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13